

# TESLA COIL

6" COPPER BALLS

THE SECONDARY CONSISTS OF 1000 TURNS OF NO. 24 D.C.C. WIRE, SPACE WOUND ON A FIBRE TUBE 1'-2" x 4'-6". THE ENTIRE COIL SHOULD BE GIVEN A COAT OF SHELLAC OR COLLODION.

HIGH VOLTAGE CABLE

THE PRIMARY CONSISTS OF 10 TURNS OF 1/2" COPPER TUBING, SPACE WOUND ON A WOODEN DRUM 2'-8" x 12". THE PRIMARY IS MOUNTED ON 7" PYREX INSULATORS.

A FLEXIBLE LEAD AND CLIP IS USED TO VARY THE NUMBER OF PRI. TURNS.



A ROTARY SPARK GAP WILL GREATLY IMPROVE THE OPERATION.

1 K-VA. TRANSFORMER.

110 E.A.C. LINE

SEC.

PRI.

CONDENSER

SPARK GAP

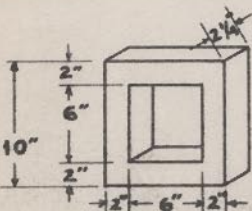
4'-6"

1'-2" DIAM.

2'-8" DIAM.

12"

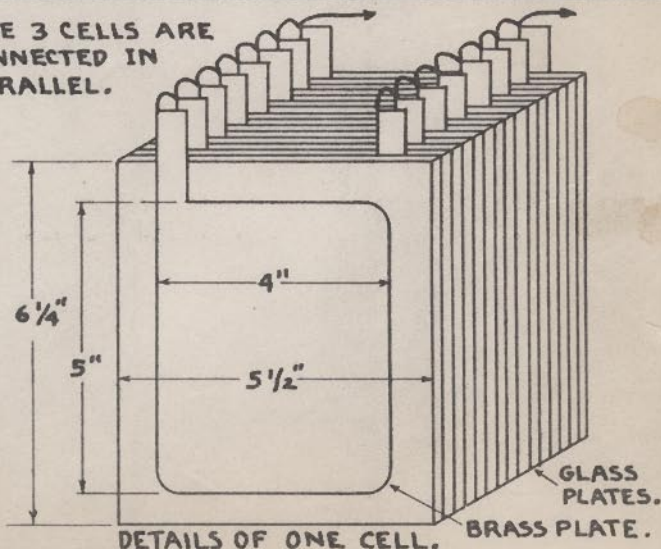
7"



TRANSFORMER DETAILS.  
CORE - 40 LBS. OF IRON.  
PRI. - 130 TURN #14 S.C.E. WIRE. 2 LBS.  
SEC. - 29,500 T. #34 S.C.E. WIRE. 5 LBS.  
PRI. - 110E. SEC. - 25,000E.

THE 3 CELLS ARE CONNECTED IN PARALLEL.

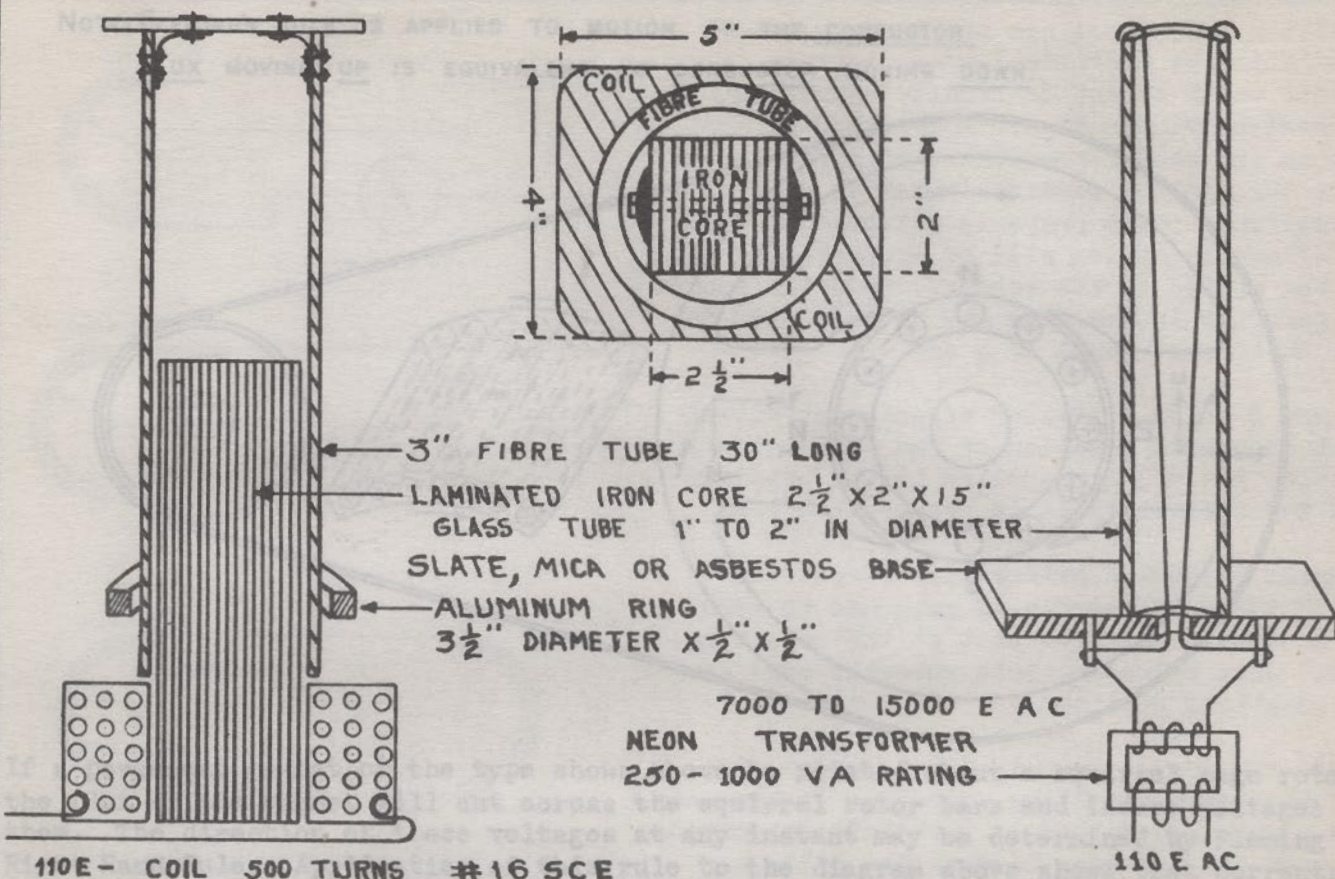
THE CONDENSER CONSISTS OF 48 SHEETS .005" BRASS SEPARATED BY DOUBLE STRENGTH GLASS SHEETS AND ASSEMBLED IN A THREE CELL AUTO BATTERY CASE FILLED WITH TRANSFORMER OIL. DETAILS OF UNIT FOR ONE CELL ARE SHOWN AT THE RIGHT. IMPROVED PERFORMANCE MAY SOMETIMES BE OBTAINED BY INCREASING OR DECREASING THE NUMBER OF PLATES. THE BEST ARRANGEMENT WILL BE FOUND BY TRIAL.





# JUMPING RING

# LADDER ARC



The electrically-operated display units shown above may be used to good advantage as window displays to attract the attention of prospective customers. The operation of these units is so novel and mysterious that any persons passing by a window where one or both are displayed will automatically stop to investigate. In doing so, they will naturally see other articles displayed, helping the owner to better advertise his merchandise. You might also make money by constructing these display units and selling or renting them to merchants or store keepers at a real profit.

The jumping ring should be mounted in a wooden box in such a manner that the transformer, switch and connections are below the top of the box, in order to conceal these parts. An intermittently-operated switch may be connected in series with the coil to give continuous operation. When the circuit is closed, the ring will be forcefully repelled by reason of heavy currents induced in it due to transformer action when the coil is energized. The circuit should remain closed for a few seconds, causing the ring to remain suspended without any apparent reason. It is this evident defiance of the law of gravitation which arouses the interest of a passer-by.

The ladder arc operates on the principle that electric arcs drawn in air between vertical wires will be driven upward by the rising heated air and by magnetic action. In the arrangement shown above, the arc is drawn at the bottom of the tube and travels rapidly to the top where the increasing arc length finally causes it to snap out. When this occurs, the arc is immediately re-established at the base and the cycle is repeated. Location of this device in a manner that will permit free circulation of air through the tube will result in improved operation by increasing the rate at which the arc travels.

The size of the transformer to be used with this device can be determined by experiment; however, a 1000 VA (9000 V) neon sign transformer will operate quite satisfactorily on a tube two inches in diameter. If a one-inch tube is used, a 300 to 500 VA transformer will be satisfactory. If the wires expand enough when heated to interfere with operation, a small coil spring may be inserted in each wire at the top to take up the extra length caused by expansion.